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## Income Growth in German Households – East Germany Falls Behind

Karl Brenke

Following the enormous growth in household incomes in the former East Germany during the first half of the 1990s (which was based, in particular, on meteoric wage rises, accompanying pension adjustments, and the increase in receipt of social welfare benefits), east German incomes subsequently expanded only moderately. Income growth was not as strong as in west Germany, largely because total earned income expanded only marginally. This feeble growth was due exclusively to the weak employment trend. While the income growth in households with an earned income was lower from the mid-1990s onward than it had been previously, it nonetheless kept pace with the trend for average earned income in west German working households. The adjustment of east German wages to the west German level continued, albeit at an increasingly slow pace.

A growing number of east German households are dependent on social transfers, and these transfers account for an increasingly large share of household income. There is little evidence of a similar trend in west Germany, given that employment growth is somewhat more favorable in this part of the country. Moreover, the share of east German households in receipt of old-age pensions has increased at a stronger rate than in west Germany. In 2002, social security benefits and statutory pensions accounted for almost 40% of total net household income in east Germany, compared with only just over a quarter of net household income in west Germany.

Not only has the share of pensioner households increased in east Germany – as it also has in the western part of the country – but the structure of households has also undergone a general transformation within a relatively short period of time. Shortly after reunification, east German households had more members than west German households, on average, whereas now they have fewer. In particular, the share of families with children has declined, while the share of single parents has remained unchanged. As a result of this decline in average household size, since the mid-1990s east Germany has fallen only slightly behind west Germany with respect to household income weighted by household composition.

### Data base

The study is primarily based on data obtained from the Socio-Economic Panel (SOEP) survey, which is carried out by DIW Berlin in collaboration with the Infratest Social Research Institute. The SOEP elicits data on gross income directly;<sup>1</sup> where no response is provided, the amount of gross income is imputed. The net income of households is calculated on the basis of the applicable tax and social contribution rates. The income data collected in each survey wave refers to the preceding year.

The calculation of needs-weighted household income (equivalent income) is based on the new OECD scale.<sup>2</sup> Under this method, total household income is divided by a quantity consisting of the sum of the needs-based weightings of the household members, whereby the head of household is assigned a weighting of 1, each additional member aged over 14 a weighting of 0.5, and each child a weighting of 0.3. The purpose of this procedure, which is commonly applied world wide, is to take account of the effects of cost degression in households.

<sup>1</sup> Cf. Joachim R. Frick and Markus M. Grabka: 'Item Nonresponse on Income Questions in Panel Surveys: Incidence, Imputation and the Impact on Inequality and Mobility.' In: *Allgemeines Statistisches Archiv*, no. 89, 2005, pp. 49-63.

<sup>2</sup> Cf. Joachim R. Frick, Jan Goebel, and Markus M. Grabka: 'Zur langfristigen Entwicklung von Einkommen und Armut in Deutschland: Starke Reduktion der arbeitsmarktbedingten Ungleichheit durch sozialstaatliche Maßnahmen.' In: *Wochenbericht des DIW Berlin*, no. 4/2005, pp. 59-68.

### Gap between east and west German household incomes reopens

The following analysis covers the period from 1991 to 2002. The first half of this period (1991 to 1996) saw a very robust increase in east German household incomes.<sup>1</sup> Incomes rose by around half in nominal terms (cf. table 1), but a very substantial share of this growth was eaten up by price increases.<sup>2</sup> Following adjustment on the basis of the official cost-of-living index, the increase in real household income amounted to 13%. The trend for west German households was less favorable. Nominal net income rose by almost 10%, but the consumer price index rose by 14%, resulting in a real loss of 4% in net income. Hence, the differential between east and west German household incomes narrowed significantly. This applied to all the components of income, especially statutory pensions, but also earned income, and income from assets (with the rise in the latter commencing at a particularly low level). Government transfers, which were already much higher per household in east than in west Germany in 1991, also rose robustly. Given the high rate of unemployment in east Germany, a relatively large share of these transfers was accounted for by unemployment benefits and short-time-worker payments.

The gap between east and west Germany widened again from the mid-1990s onwards. Net income rose by 19% in nominal terms in the former West Germany, compared with only 12% in the former East Germany, although the disparities in price growth had practically disappeared by then.<sup>3</sup> Earned income grew at a much weaker rate in east than in west Germany. And, at 10 percentage points, income from assets also grew at a much slower pace than in west Germany, where the growth rate was twice as high.<sup>4</sup>

While the share of households with an income from a private pension (e.g., company pensions, or pensions drawn from a private insurance scheme) has increased in east Germany, such income has played a very insignificant role to date. It was not possible to acquire rights of this kind in the former East Germany. Despite the rise in private transfers, which include support for separated spouses and for children, as well as benefits for pupils, students, and apprentices living outside the home, these income components are also only of marginal significance for the east German household budget.

<sup>1</sup> There had already been robust income growth prior to 1991, but detailed information on this period is not available. For information on the most important component of household income by far, i.e., wages, cf. Karl Brenke: 'Wages in East Germany – Adjustment to the West German Level Still Far in the Future.' In: *DIW Berlin Economic Bulletin*, vol. 38, no. 7, July 2001, pp. 219-226.

<sup>2</sup> The price rises were due in part to cutbacks in subsidies and in part they were a reaction to income growth, especially wage increases.

<sup>3</sup> The Federal Statistical Office made a distinction between the consumer price indices for east and west Germany only until 1999 and subsequently discontinued its practice of compiling separate price statistics for the two regions. The distinction is indeed redundant given that as early as the second half of the 1990s, there was very little difference in the price trends for east and west Germany. This has also been the case in recent years, as demonstrated by observation of the price indices for individual federal states.

<sup>4</sup> On this topic, cf. Peter Krause and Andrea Schäfer: 'Verteilung von Vermögen und Einkommen: Große Unterschiede nach Geschlecht und Alter.' In: *Wochenbericht des DIW Berlin*, no. 11/2005, pp. 199-207.

Table 1

## Household Income in East and West Germany by Income Type

	Germany	West Germany	East Germany	
	Euro		Index (west Germany = 100)	
2002				
Earned income	27 155	28 740	20 209	70
Property income	1 601	1 811	681	38
Private old-age pensions	568	661	163	25
Private transfers	200	210	157	75
Government transfers	2 268	2 057	3 194	155
Statutory pensions	6 098	6 073	6 209	102
Gross income	37 892	39 552	30 613	77
Income tax	-5 619	-6 147	-3 307	54
Social insurance contributions	-4 483	-4 642	-3 789	82
Net income	27 789	28 763	23 517	82
Memo item: Needs-weighted net income	18 552	19 215	15 667	82
1996				
Earned income	23 732	24 761	19 115	77
Property income	1 323	1 480	619	42
Private old-age pensions	388	452	102	23
Private transfers	171	188	96	51
Government transfers	1 789	1 604	2 619	163
Statutory pensions	5 141	5 176	4 984	96
Gross income	32 544	33 661	27 536	82
Income tax	-4 909	-5 343	-2 962	55
Social insurance contributions	-4 024	-4 115	-3 615	88
Net income	23 611	24 203	20 958	87
Memo item: Needs-weighted net income	15 515	16 018	13 262	83
1991				
Earned income	21 420	23 163	13 798	60
Property income	936	1 095	239	22
Private old-age pensions	287	329	103	31
Private transfers	103	122	21	17
Government transfers	929	859	1 234	144
Statutory pensions	3 792	4 124	2 342	57
Gross income	27 467	29 692	17 737	60
Income tax	-3 633	-4 194	-1 177	28
Social insurance contributions	-3 227	-3 411	-2 422	71
Net income	20 607	22 087	14 137	64
Memo item: Needs-weighted net income	13 279	14 344	8 619	60

Sources: SOEP; DIW Berlin calculations.

## Rapid transformation in household structure

When incomes are weighted by the needs resulting from the different constellations of households, it then emerges that while the rapid catching-up process seen in

east Germany in the first half of the 1990s subsequently came to a halt, east Germany nonetheless then fell only slightly behind west Germany. This was related to the fact that the average number of household members declined at a faster pace in east than in west Germany (cf. figure 1). One of the main factors was the decrease in

Table 2  
Household Structures in East and West Germany  
in %

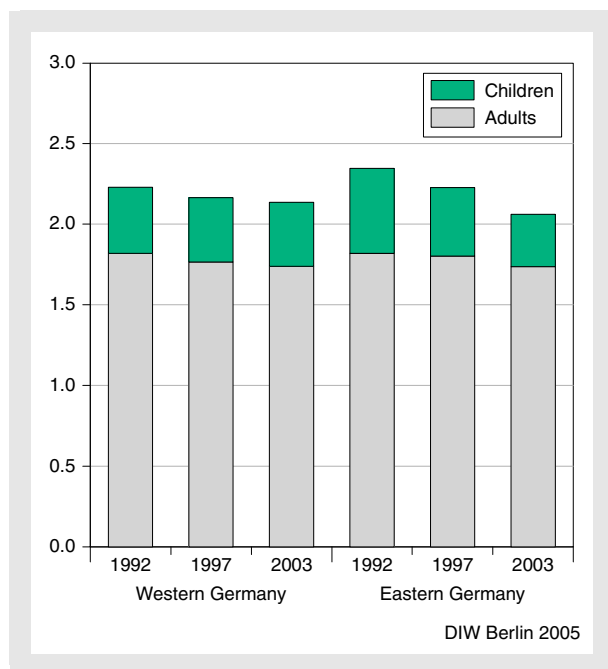
	West Germany			East Germany		
	1992	1997	2003	1992	1997	2003
One-person households (not including pensioners)	22	23	23	12	15	20
Couple households (not including pensioners)	15	15	15	13	13	13
Single parents	6	6	6	6	6	7
Couple households with children aged up to 16	16	15	15	22	14	12
Couple households with at least one child aged over 16	14	11	11	12	14	12
One-person households (pensioners)	14	15	15	16	17	18
Couple households (including pensioners)	11	12	14	13	16	17
Other households	3	3	2	4	5	1
All households	100	100	100	100	100	100

Sources: SOEP; DIW Berlin calculations.

the number of children per household (minus 40%) resulting from the massive slump in the birth rate since the early 1990s. In particular, the share of couple households with children declined (cf. table 2), while the share of single-parent households remained constant. As a

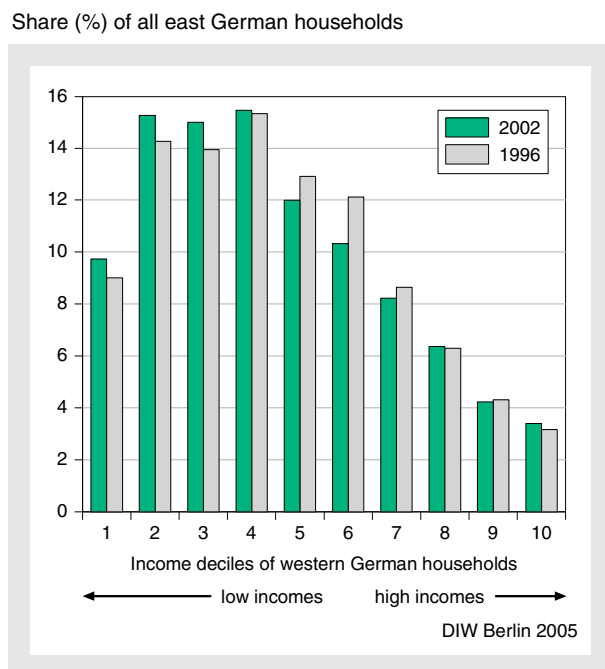
result, a relatively large share of children (much larger than in the past) is growing up in this type of household in east Germany. The average number of adults living in each household is also in decline. In particular, the number of one-person households has risen rapidly.

Figure 1  
Trend for Household Composition in East and West Germany  
Average number of persons per household



Sources: SOEP; DIW Berlin calculations.

Figure 2  
Distribution of East German Households across Income Deciles of West German Households  
Share (%) of all east German households



Sources: SOEP; DIW Berlin calculations.

## Rise in inequality of income distribution in east Germany

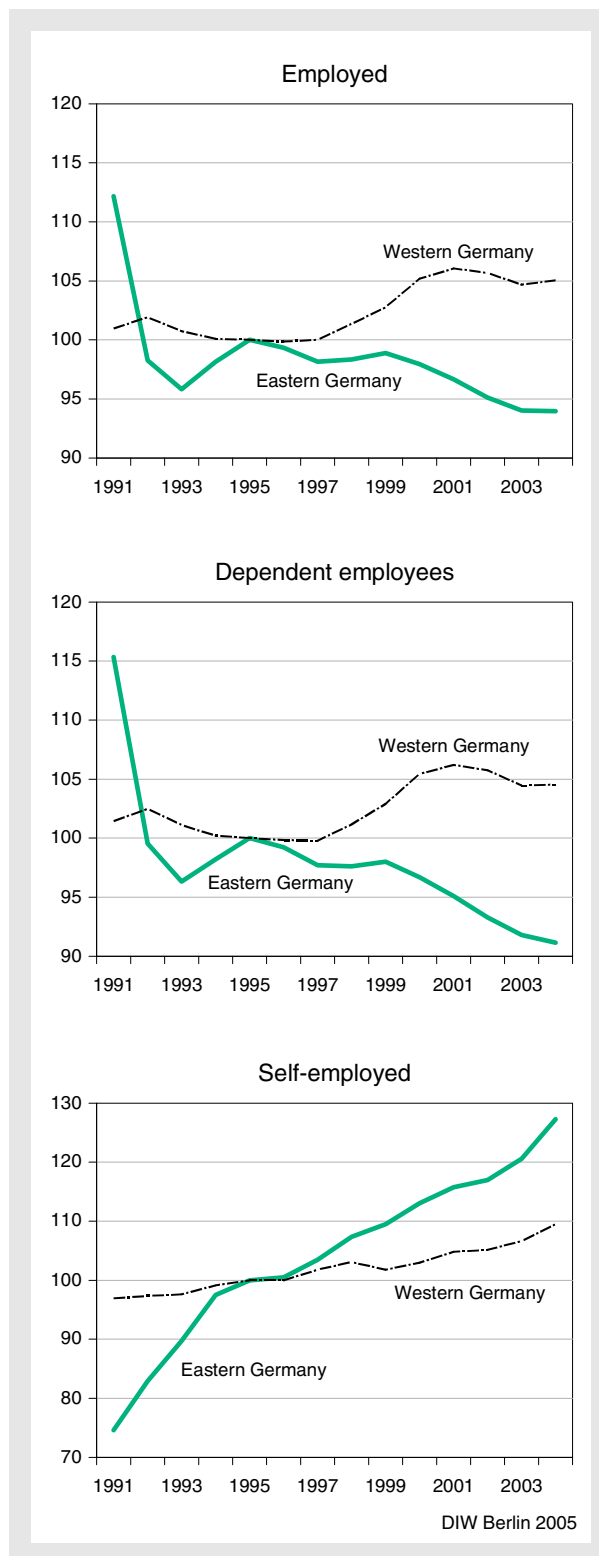
The income of the majority of east German households corresponds to a low or medium income in west German terms (cf. figure 2).<sup>5</sup> Thus, high-income households are under-represented in east Germany. This structure did not change substantially between 1996 and 2002. However, the share of households with a medium income (by west German standards) declined. In other words, there was a shift in the income structure in favor of low-income households. The distribution of low and medium incomes in east Germany thus once again began to resemble the structure seen in the early 1990s,<sup>6</sup> while at the same time the inequality of income distribution increased.

## Earned income increasingly determined by employment trend

The official statistics show an absolute decline in the labor force<sup>7</sup> in both of the periods observed in this study, with employment rising only briefly in the mid-1990s (cf. figure 3). In the initial years subsequent to reunification, earned income rose sharply in east Germany, despite a plunge in employment figures.<sup>8</sup> Since around the mid-1990s, by contrast, earned income has hardly risen at all. As a result of the different employment trends in the two regions of Germany, total earned income in east Germany has actually fallen behind.

According to official figures, (gross) wages and salaries per dependent employee in east Germany have become more closely aligned to the west German level since 1995 – albeit at an increasingly slow pace (cf. figure 4). This is even more true for gross hourly wages, although here the disparity between east and west Ger-

Figure 3  
Employment in East and West Germany<sup>1</sup>  
1995 = 100



<sup>1</sup> Berlin is excluded in both cases.

Sources: Federal States' Working Group on Employment Figures; DIW Berlin calculations.

<sup>5</sup> For the purposes of the analysis, the west German households were divided up by income level into ten groups of equal size; the east German households were then allocated to these ten income classes.

<sup>6</sup> For the structures observed in the first half of the 1990s, cf. DIW Berlin, IfW, IWH: 'Gesamtwirtschaftliche und unternehmerische Anpassungsprozesse. Neunzehnter Bericht.' In: *Kieler Diskussionsbeiträge*, no. 346/347, 1999.

<sup>7</sup> The national accounts only give details of the respective labor forces in east and west Germany in accordance with the domestic concept. This concept reveals the region in which a person works, but not the region in which he/she lives. Therefore, unlike the system used under the place-of-residence concept, on which the SOEP household survey is based, the national accounts classify workers commuting between east and west Germany according to their respective places of work. While the number affected is not minimal, neither is it so large that the two sources cannot be used in combination.

<sup>8</sup> Cf. Karl Brenke, loc. cit.

Table 3

### Households with Earned Income as a Share of All Households; Income Levels<sup>1</sup> in East and West Germany

	West Germany			East Germany		
	1991	1996	2002	1991	1996	2002
Total households with earned income						
Share of all households in %	71	68	69	74	66	61
Average earned income in euro	32 706	36 582	41 679	18 655	29 010	32 944
Index (west Germany = 100)	100	100	100	57	79	79
Households with income from self-employment						
Share of all households in %	9	9	10	6	8	8
Average income from self-employment <sup>2</sup> in euro	25 514	28 656	42 161	14 662	25 929	30 603
Index (west Germany = 100)	100	100	100	57	90	73
Households with income from dependent employment						
Share of all households in %	66	61	61	72	62	55
Average income from dependent employment <sup>2</sup> in euro	30 800	35 094	39 372	17 697	26 746	31 662
Index (west Germany = 100)	100	100	100	57	76	80
Households with income from part-time employment						
Share of all households in %	7	10	11	4	8	10
Average income from part-time employment in euro	3 842	4 019	3 345	1 570	2 182	2 329
Index (west Germany = 100)	100	100	100	41	54	70

1 Gross income. — 2 Principal activity.  
Sources: SOEP; DIW Berlin calculations.

man workers is even greater than in the case of per capita wages. This situation is reflected at household level: Alignment with the west German income level is most advanced in those east German households that are in receipt of a dependent employee's earnings (cf. table 3).

The situation of east German households with an income from self-employment also improved considerably – especially in the first half of the 1990s, when economic growth was particularly strong, for example in the construction sector. While the self-employed in east Germany also managed to further improve their incomes in the subsequent period, income growth in this group was still less substantial than in west Germany. This was also true for households with an income from a part-time activity. This form of employment began to become widespread among east Germans from 1991 onward<sup>9</sup> – be it as dependent employees, self-employed, or family workers. Self-employment increased, in particular as a principal employment activity. However, this

increase was by no means sufficient to offset the decline in dependent employment.

### Significant rise in the importance of transfer income

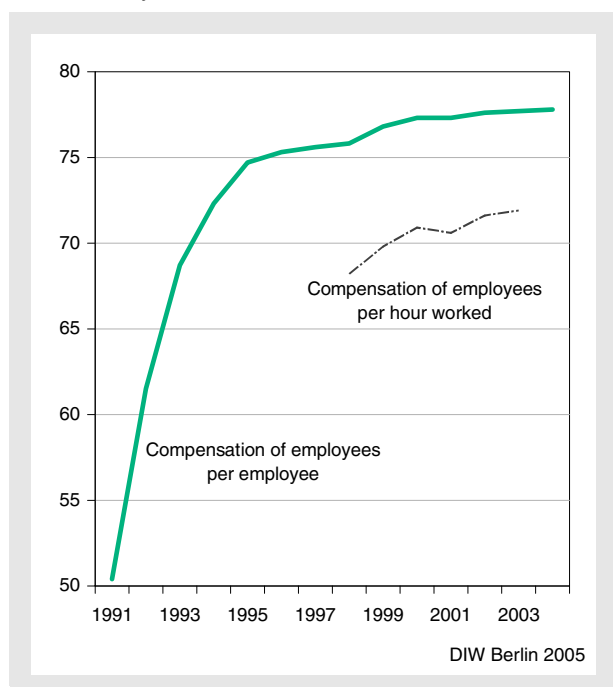
The above-average rise in income from government transfers (statutory pensions and public transfers such as unemployment assistance, children's allowance, social welfare benefit, housing allowance, and *BAFöG* student grants) in Germany is basically a result of three factors: the aging of society, the high rate of unemployment, and the rapid structural transformation of life-

<sup>9</sup> Supplementary jobs were probably widespread in the former East Germany's 'economy of scarcity', but there are no statistical data available on the extent of the phenomenon.

styles, e.g., the growing importance of single-parent and pensioner households. Persistently high unemployment has an impact on retirement when – in order to reduce the 'surplus' labor force potential – workers are 'dispatched' into early retirement. The dramatic job losses of the early 1990s had already rendered social transfers more widespread in east than in west Germany during that period. The further rise in unemployment and the sharp growth in individual transfer income since then has increased their significance even further.

Total transfers accounted for 30% of total (gross) household income in east Germany in 2002, compared with only 20% in west Germany (cf. figure 5). Given that transfers are hardly subject to taxation, when seen in relation to net income this share rises to almost 40% (compared with over 25% in west Germany). Income from transfers in east Germany significantly exceeded the sum of income tax and social insurance contributions paid in the region. In 2002, the difference amounted to 2300 euro per household, whereas in 1991 social transfers had been balanced out by tax and social insurance payments. Thus, a gap developed between transfer incomes, on the one hand, and taxes and social insurance contributions, on the other. In west Germany, by contrast, taxes and social insurance contributions

Figure 4  
**Alignment of East to West German Wages**  
West Germany = 100

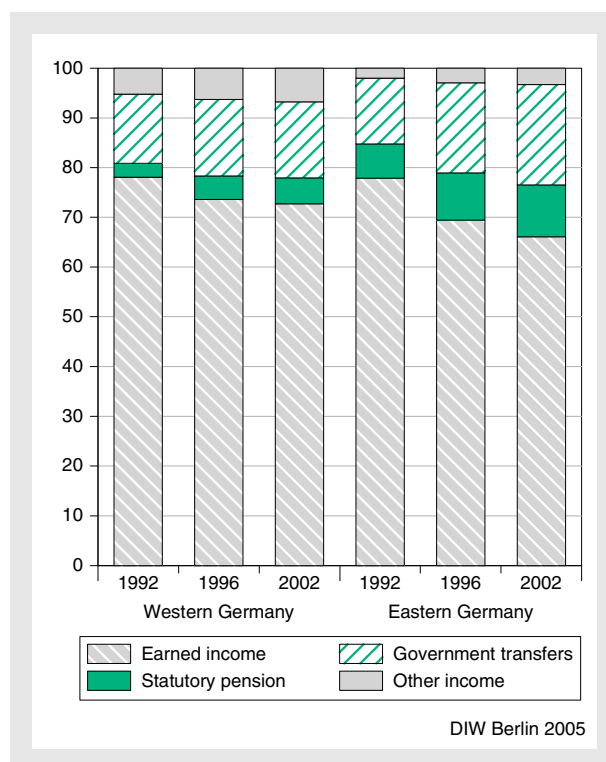


1 Berlin is excluded in both cases.

Sources: Federal States' Working Group on Employment Figures; DIW Berlin calculations.

Figure 5  
**Structure of Household Income in East and West Germany**

Share of gross household income in %



Sources: SOEP; DIW Berlin calculations.

have exceeded transfer income by a constant figure of around 2700 euro since 1991. The result, therefore, is that east German households are substantially subsidized by their west German counterparts.

## Growing number of transfer-dependent households

Not only has the share of household income accounted for by transfers increased, but the number of east German households that are dependent on transfers is also rising (cf. figure 6). In particular, the number of households that depend almost exclusively on transfers (over 90% of household income) has increased. Many of these are pensioner households, which – unlike in west Germany – have very little access to other sources of income, such as assets.<sup>10</sup> Pensioners in east Germany are not disadvantaged with respect to the amount of their statutory pensions, however, for they receive

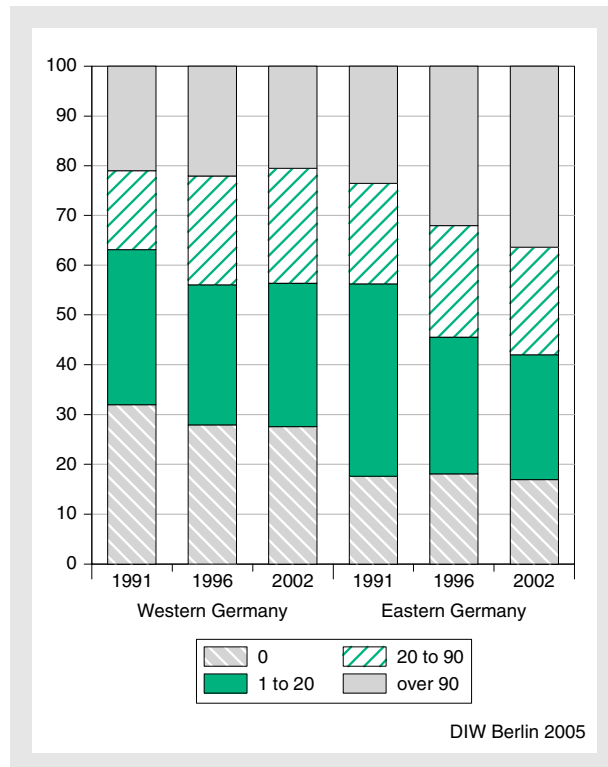
<sup>10</sup> Cf. Peter Krause and Andrea Schäfer, loc. cit.



Figure 6

### East and West German Households by Share of Household Income Accounted for by Social Transfers<sup>1</sup>

Share of all households in %



<sup>1</sup> Statutory pensions and government transfers.  
Sources: SOEP; DIW Berlin calculations.

higher payments than their counterparts in west Germany.<sup>11</sup>

The importance of transfers as a share of household income has also increased in other types of households. And this is also true, albeit to a less substantial extent, for west Germany (cf. table 4). In couple households (where neither partner is drawing a pension) both with and without children, the share of the household budget accounted for by transfers has increased. In east Germany, moreover, both individuals living alone and single parents have become increasingly dependent on transfers.

<sup>11</sup> Thus, east German pensioners, according to data from the Federal Statistical Office, drew an average blue-collar worker's pension of 712 euro in 2003 and an average salaried worker's pension of 864 euro. Pensioners in west Germany received only 606 euro and 808 euro, respectively; cf. Federal Statistical Office, mimeo, [www.destatis.de/basis/d/solei/soleiq21b.php](http://www.destatis.de/basis/d/solei/soleiq21b.php). The only reason east German pensioners receive larger payments is that a higher number of years is taken into account in calculating their claims; cf. Federal Statistical Office, mimeo, [www.destatis.de/basis/d/solei/soleiq21a.php](http://www.destatis.de/basis/d/solei/soleiq21a.php).

## Conclusions

Income growth has been slower in east Germany than in west Germany since the mid-1990s. And yet the reason is not that individual earned income, as the most important source of income, has grown only weakly. Rather, the number of income-earners has fallen, so that dependence on government transfers has risen sharply. Moreover, transfers significantly exceed income tax and social insurance contributions. This state of affairs would be impossible within a closed national economy, or would at least lead swiftly to its collapse. It is only made possible in east Germany by the solidarity support received from west Germany. But the provision of support is increasingly debilitating the business cycle in west Germany, in particular as east Germany's dependency on transfers continues to grow.

At first glance, the phenomenon of above-average wage growth, on the one hand, and weak employment growth, on the other, could lead one to suppose that the east Germany economy had become less competitive. Excessively high wage growth certainly massively impeded the reconstruction of the economy in the phase of upheaval immediately following reunification, contributing to the loss of numerous jobs and preventing the creation of new ones.<sup>12</sup> However, the market has since corrected these negative developments. Thus, in 2004, unit labor costs in the manufacturing sector, for example, which accounts for a particularly large share of the export base in east Germany, amounted to 91 % of the west German level.<sup>13</sup>

If competitiveness is not the problem, then, it can only be weak demand that is leading to the decline in the number of jobs in east Germany. However, not only east Germany, but also Germany as a whole must be examined in this regard. In fact, growth in domestic demand has been increasingly falling behind export growth for several years.<sup>14</sup> This disparity affects east much more than west Germany because the export base is much smaller in the former region. Thus, east German exports accounted for just over 5 % of total German exports in 2003.<sup>15</sup> The weak growth in employment and therefore also in household income is thus mainly a consequence of the growing imbalances in macroeconomic growth in Germany as a whole.

<sup>12</sup> Cf. Karl Brenke, loc. cit.

<sup>13</sup> Wages and salaries per worker as a share of GDP per employed person; calculated on the basis of data from the Federal States' Working Group on ESNA.

<sup>14</sup> Cf. Study Group 'Business Cycle': 'Economic Trends 2005/2006.' In: *DIW Berlin Weekly Report*, no. 1/2005, pp. 1-41.

<sup>15</sup> Cf. Arbeitskreis Konjunktur Ostdeutschland: 'Lage und Aussichten der ostdeutschen Wirtschaft: Im Sog der konjunkturellen Erholung.' In: *Wirtschaft im Wandel*, no. 8/2004.



Table 4

# Earned Income and Social Transfers as an Average Share of Household Income in East and West Germany

(%)

	West Germany			East Germany		
	1991	1996	2002	1991	1996	2002
Earned income as an average share of gross household income <sup>1</sup>						
One-person households (not including pensioners)	71	67	76	84	71	64
Couple households (not including pensioners)	92	87	87	92	82	78
Single parents	63	55	54	74	58	54
Couple households with children aged up to 16	88	82	81	85	81	71
Couple households with at least one child aged over 16	83	81	79	86	82	78
One-person households (pensioners)	4	3	2	1	1	0
Couple households (including pensioners)	14	13	12	24	13	12
Other households	70	66	53	67	68	53
Social transfers as an average share of gross household income <sup>1</sup>						
One-person households (not including pensioners)	21	25	16	13	25	31
Couple households (not including pensioners)	5	8	7	6	15	18
Single parents	28	37	37	22	38	42
Couple households with children aged up to 16	10	15	16	14	18	27
Couple households with at least one child aged over 16	11	15	17	13	16	20
One-person households (pensioners)	88	86	87	93	96	94
Couple households (including pensioners)	73	75	74	70	83	84
Other households	22	28	40	31	30	43

<sup>1</sup> Arithmetic mean of earned income and social transfers as share of income of individual households.

Sources: SOEP; DIW Berlin calculations.

It will be very difficult for east Germany to catch up with the western part of the country if the economic recovery is not borne to a greater extent by domestic demand. Another reason a trend of this kind is urgently required is the growing risk that the situation in east Germany could develop into a self-reinforcing downturn. It must be remembered that the east German popu-

lation is continuing to decline as young people, and especially young women, emigrate in view of the lack of employment opportunities. Emigration is not only diminishing purchasing power, production possibilities, and income opportunities in east Germany, but also the potential foundations of a successful economic future.